Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No. PCT/FR2004/000052	International filing date *(day/month/year)* 14.01.2004	Priority date *(day/month/year)* 15.01.2003
International Patent Classification (IPC) or national classification and IPC C03B37/02, C03B37		
Applicant SAINT-GOBAIN VETROTEX FRANCE S.A.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of _____ sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. ☐ *(sent to the applicant and to the International Bureau)* a total of _____ sheets, as follows:

      ☐ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))

      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/EP Facsimile No.	Authorized officer Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/FR2004/000052

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following language _____, which is the language of a translation furnished for the purposes of:

☐ international search (Rule 12.3 and 23.1(b))

☐ publication of the international application (Rule 12.4)

☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1-9 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

nos. 1-13 as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* _____ received by this Authority on _____

nos.* _____ received by this Authority on _____

☒ the drawings:

sheets 1/4-4/4 as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/FR2004/000052

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	3,4,6,7,8,10,13	YES
	Claims	1,2,5,9,11,12	NO
Inventive step (IS)	Claims	8	YES
	Claims	1-7,9-13	NO
Industrial applicability (IA)	Claims	1-13	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The present notification makes reference to the following documents:

D1: US 3 345 147 A (RUSSELL ROBERT G) 3 October 1967

D2: US 4 214 884 A (MARTIN WALTER L JR) 29 July 1980

1.1 The present application does not meet the requirements of PCT Article 33(1), since the subject matter of **claim 1** does not comply with the criterion of novelty defined by PCT Article 33(2).

Document D1 describes (see column 3, lines 43-47) a heat exchange device comprising at least one flange with at least one porous wall acting as a uniform fluid blowing means (cf. figure 5).

1.2 Similarly, document D2 anticipates the subject matter of **claim 1**, since said document describes (see claim 1 and figure 3) a heat exchange device comprising at least one flange with at least one porous wall acting as a uniform fluid blowing means (cf. column 3, lines 35-37).

1.3 In so far as the porous wall acts as a blowing

means, it is clear that documents D1 and D2 refer to an open porosity.

2. Claims 2-7 and 9-13 do not contain any feature which, when combined with the features of any one of the claims to which they refer, complies with the requirements of novelty and/or inventive step of the PCT (PCT Article 33(2) and (3)).

2.1 With regard to **claim 2**, document D1 describes a flange with a porosity of 30% (column 6, line 15) and document D2 describes a microperforated blowing flange with a calculated porosity in the range of 21 to 36% (see column 2, lines 49-54). The subject matter of claim 2 is therefore not novel.

2.2 With regard to **claims 3 and 4**, document D1 (figure 6) describes a parallelepiped flange with a tubular cross-section. Therefore, this feature is not novel.

Moreover, document D1 (column 7, lines 60-61) indicates that the permeability of the material must be taken into account to optimise the device. It follows that adjusting the air permeability of the material on the basis of the desired cooling level is a standard technical step for a person skilled in the art and does not therefore involve an inventive step.

2.3 **Claim 5** is understood to mean that, when the

flange has two porous walls, the velocity field is symmetrical about the plane of symmetry of said flange. As D1 describes such a velocity field (figure 5), the subject matter of claim 1 is not novel.

2.4 With regard to **claim 6**, document D1 mentions a porous metal, e.g. stainless steel, as a possible material to be used (column 7, lines 67-68). The technology of sintered metal powders is currently a well-known method used for obtaining porous metal materials. Combining the teachings of document D1 with a well-known technology does not involve an inventive step.

Moreover, the additional features of **claim 7** do not involve an inventive step, since they relate to the optimisation of parameters in a well-known technology.

2.5 The subject matter of **claim 9** is not novel since document D1 describes one or two-layer fabrics (see column 6, lines 18-19). A person skilled in the art would include additional layers to adjust the permeability of the wall according to the requirements. Hence, the subject matter of **claim 10** does not involve an inventive step.

2.6 Document D1 describes the use of air as a cooling fluid and mentions, by way of illustration, the use of a pressure of 60 pounds per square inch, which corresponds to 4.1 bars (see column 6, lines

24-26). Adjusting the operational pressure of the cooling system is, moreover, a standard optimisation step for a person skilled in the art. Therefore, the subject matter of **claim 11** does not meet the criteria of novelty and inventive step of the PCT.

2.7 D1 mentions the possible use of a liquid that evaporates in the flange (column 7, lines 19-25 and 39-43). The subject matter of **claim 12** is therefore not novel.

2.8 The additional feature of **claim 13** is known to a person skilled in the art and used in the prior art non-blowing flanges. The combination thereof with the features of any of the claims to which claim 13 refers does not provide any additional advantage, and does not therefore involve an inventive step.

3. The combination of features of **claim 8** is not contained in the prior art and cannot be derived in an obvious manner therefrom for the following reasons:

3.1 Document D1, which is considered the closest prior art, describes a heat exchange device from which the subject matter of the current claim 8 differs in that said device is made of a porous, stainless steel-, brass- and nickel-based metal, and has a porosity of around 17%. The subject matter of claim 8 is therefore novel.

3.2 The effect of these technical features is to improve blowing uniformity. The problem to be solved is therefore that of improving fibre-forming stability with efficient bulb cooling.

3.3 Document D1 mentions this problem (column 3, lines 34-41) as well as the parameters for optimising the device, namely the porosity and permeability of the material as well as fluid pressure. Said document mentions, for instance, a porosity of 30% (column 6, line 15).

In order to improve fibre-forming stability while maintaining efficient bulb cooling, a person skilled in the art would be led to increase the porosity and/or to use the device with a higher air pressure.

3.4 Selecting a porosity that is distinctly lower than that disclosed in document D1 therefore involves an inventive step.

Consequently, the subject matter of claim 8 meets the criteria of novelty and inventive step of the PCT (PCT Article 33(1)).